

Program of the Twelfth Symposium on Polar Biology  
held at the National Institute of Polar Research, Tokyo,  
December 6-8, 1989

—Contributed Papers—

I. Mosses/Lichens (1)

1. Microclimate studies at the Yukidori Valley, Langhovde, Antarctica. S. OHTANI, H. KANDA, H. SUGAWARA, Y. MOCHIDA, M. INOUE and Y. OHYAMA.
2. On aquatic mosses found in lakes along the Sôya Coast, East Antarctica. H. KANDA and S. OHTANI.
3. New additions of bryaceous mosses (Musci, Bryaceae) to the Antarctic flora. H. OCHI and H. KANDA.
4. Comparative studies on flora and ecology of lichens between Syowa Station areas, continental Antarctica and King George Island, maritime Antarctica. M. INOUE.
5. Activation analysis of trace elements in lichens collected at Langhovde. A. NAKAMURA and M. INOUE.
6. Components of Antarctic lichens which result in inhibition of seed germination. Y. TSUJINO, H. TAZAKI, K. YOSHIDA, T. FUJIMORI, Y. MOCHIDA and Y. OHYAMA.

II. Mosses/Lichens (2)

7. A study on the microclimate in mossy area of King George Island (Antarctic). H. LI and J. Jr.
8. Classification of the vegetation types in the Fildes Peninsula, King George Island, Antarctic. X. LI, F. CHEN and H. CHEN.
9. Classification and distribution of the bryophytes in the Fildes Peninsula, King George Island, Antarctic. F. CHEN, X. LI and H. CHEN.
10. Nutrient limitations to bryophyte CO<sub>2</sub>-exchange on a sub-Antarctic island. V. R. SMITH.

III. Special Lecture on Terrestrial Biology

11. Scenario for a sub-Antarctic island ecosystem under a changing climatic regime. V. R. SMITH.

IV. Plant Fossil/Vegetation

12. A synopsis of *Nothofagoxylon* from Antarctica and Patagonia. T. OHSAWA and M. NISHIDA.
13. Structure and succession of alpine perennial community (*Polygonum*) on Mt. Fuji. T. MASUZAWA and J. SUZUKI.
14. Vegetation of arctic Canada with special reference to the vegetation of Cornwallis Island. S. KOJIMA.
15. The vegetation of a severe polar desert environment at Sverdrup Pass, central Ellesmere Island, Canadian High Arctic. P. F. MAYCOCK.
16. Scanning electronmicroscopy of colonizing rock surfaces in the far north, Canada. D. FAHSELT.

V. Invertebrates

17. On the copepod fauna in Arctic Canada. Y. KIKUCHI.
18. Antarctic tardigrades II. K. UTSUGI and Y. OHYAMA.
19. Cold hardiness of *Antarcticola meyeri* (Cryptostigmata). H. SUGAWARA, K. TANNO, Y. OHYAMA and H. FUKUDA.

VI. Bacteria/Fungi

20. Low temperature adaptation in a psychrophilic bacterium, *Vibrio* sp. strain ABE-1. H. OKUYAMA, N. OKAJIMA, S. SASAKI, S. HIGASHI and N. MURATA.
21. Preliminary report on cellulolytic activity in the Antarctic region. H. YAMAMOTO, S. OHTANI,

K. TATSUYAMA and M. AKIYAMA.

22. Characterization of a new species of yeast, *Candida* sp. nov. isolated from Lake Vanda in Antarctica. J. NISHIKAWA, H. NAGASHIMA, G. I. MATSUMOTO and H. IIZUKA.
23. Origin of long-chain alkanes and alkanolic acids in endolithic microbial community of the McMurdo Dry Valleys, Antarctica. G. I. MATSUMOTO, E. I. FRIEDMANN and K. WATANUKI.

#### VII. Algae

24. A method for direct counting of algal cells in the Antarctic soil using a slide glass inserted into the soil. M. AKIYAMA, S. OHTANI and H. KANDA.
25. Floristic studies on algae from inland water near Syowa Station, Antarctica. IV. Lake Nurume. A. OGUNI and E. TAKAHASHI.
26. Ecophysiological research of structures and phototrophies among four types of cyanobacterial mats from different points at Yukidori ike, the pond of Yukidori zawa Valley, Langhovde, Antarctica. A. SHIMIZU, E. TAKAHASHI, K. KIMURA and T. WATANUKI.
27. Diatoms from Akebono Rock in Antarctica. H. FUKUSHIMA, T. KO-BAYASHI and H. ISHIDA.
28. Chrysophytes from Barrow lakes group, Alaska. E. TAKAHASHI and V. ALEXANDER.
29.  $N_2$  fixing ( $C_2H_2$  reducing), blue-green algae epiphytic on bryophytes in the alpine zone of Mt. Fuji. T. NAKATSUBO and S. OHTANI.

#### VIII. Special Lectures on Marine Biology

30. Contribution of the Pacific Arctic to the global ocean carbon budget. P. C. McROY.
31. Environmental regulation of primary production in the Barents Sea. E. SAKSHAUG.

#### IX. PREFLA Project

32. Time series change of chlorophyll *a* under sea ice in Chukchi Sea, Arctic. M. FUKUCHI, H. HATTORI, O. MATSUDA, A. TANIMURA and P. C. McROY.
33. Seasonal succession of microplankton community in the northern Bering shelf water during the period from June to September 1988. K. YAMAZAKI, A. TANIGUCHI, H. SASAKI and M. FUKUCHI.
34. Distribution of copepods in the northern Bering Sea and the Chukchi Sea (October 1988). H. HATTORI, A. TANIMURA, M. FUKUCHI and O. MATSUDA.
35. Variability in downward particulate flux in the northern Bering Sea in summer 1988, 1. Zooplankton fecal pellets. H. SASAKI, H. HATTORI, O. MATSUDA, A. TANIMURA and M. FUKUCHI.
36. Variability in downward particulate flux in the northern Bering Sea in summer 1988, 2. Sterol composition. T. YAMAGUCHI, H. SASAKI and M. FUKUCHI.

#### X. Environment

37. Characteristics of oceanographic structure along 175°E in the Ross Sea sector. M. NAGANOBU and K. KUSAKARI.
38. Oceanic circulation in the Southern Ocean. J. FUKUOKA, M. NAGANOBU and M. FUKUCHI.

#### XI. Lower Productions/Flux

39. Light conditions and photosynthetic productivity of ice algal assemblages in lagoon, Lake Saroma, Hokkaido. Y. YAMAGUCHI, H. SATOH, K. WATANABE and Y. ARUGA.
40. Standing stocks of chlorophyll in the Indian sector of the Antarctic Ocean. T. ISHIKAWA, A. NAGAI and M. FUKUCHI.
41. Species succession of net phytoplankton collected in Great Wall Bay, King George Island from November 1988 to March 1989. K. WATANABE, P. LU and F. HUANG.
42. Studies on the lipid metabolism of psychrophilic diatom isolated from the Antarctic Ocean. R. KATAHIRA, H. TOMINAGA and N. TOMINAGA.
43. Vertical transport of organic materials in Breid Bay, Antarctica II. Lipid materials. N. HANDA, N. IKUTA, M. FUKUCHI and T. HOSHIAI.
44. Abundance of microplankton populations observed in the neighboring water of Syowa Station, Antarctica, during winter of 1984. S. UTOH, A. TANIGUCHI, K. KAWAGUCHI, O. MATSUDA and S. ISHIKAWA.

45.  $^{15}\text{N}$  and  $^{13}\text{C}$  contents of Antarctic krill overwintering under the coastal fast ice in Lützow-Holm Bay, with special reference to the seasonal change in the feeding habits. K. KAWAGUCHI, E. WADA, Y. KABAYA, O. MATSUDA and S. ISHIKAWA.
- XII. Fish/Benthos (1)
46. On the kidney of *Osmerus dentex* and *Hypomesus japonicus* and their cold adaptation. M. FUKUDA, A. HAYASHIDA, M. OGAWA and M. FUKUCHI.
  47. Chum salmon *Oncorhynchus keta* in the northern Bering Sea. T. NISHIYAMA, K. MASUDA and H. OGI.
  48. Morphological features of cephalic sensory canals of fishes of the suborder Notothenioidei (Perciformes). T. IWAMI.
- XIII. Fish/Benthos (2)
49. Some cumacean crustaceans from the Antarctic Seas. S. GAMO.
  50. Taxonomic study of the family Lamelliariidae (Mollusca: Gastropoda) collected from Syowa Station and Breid Bay. H. NUMANAMI, T. OKUTANI, Y. NAITO and T. HOSHIAL.
  51. Cephalopods collected from the Greenland waters by the R/V "SHINKAI-MARU" in 1987 and 1988. T. KUBODERA and T. OKUTANI.
- XIV. Seabirds/Marine Mammals
52. Switching of the diet for chicks in Adelie penguins. Y. MORI, Y. WATANUKI, Y. NAITO and T. HIDAHA.
  53. Distribution of seabirds and physical factors of sea surface in the Indian sector of the Southern Ocean: Results of JARE-30 "SHIRASE" cruise (1988/1989). M. KOJIMA, Y. WATANUKI, M. FUKUCHI, Y. NAITO and H. OKUMURA.
  54. Preliminary studies of acoustic behavior and sound signals of *Pygoscelis adeliae*. Z. FAN and M. CHENG.
  55. Developmental biology of penguins in regard to the organic phosphate compounds from erythrocytes. M. BACILA, R. ROSA, E. RODRIGUES and P. H. LUCCHIARI.
  56. Bird communities of the Southern Ocean in summers of 1979-1984 (preliminary). N. MARUYAMA, E. OHTSUKA, N. KANZAKI, T. MAEDA and Y. NAITO.
  57. Some aspects of possible migration pattern of southern minke whales suggested from the fetus frequency. H. KATO.
  58. Occurrences and abundances of beaked whales in the Antarctic. F. KASAMATSU.

—Poster Papers—

A. Terrestrial Biology

1. A primary study on bryophyte's containing water and storing water in the Fildes Peninsula, King George Island. H. CHEN, F. CHEN and X. LI.
2. On tardigrada extracted from dried specimens of Antarctic mosses. Y. OHYAMA and H. KANDA.
3. Influence of soil macroinvertebrates on litter nutrient mineralization on a sub-Antarctic island. M. STEENKAMP.

B. Marine Biology

4. Oceanographical analysis on the southern minke whale distribution based on the data during Japanese research take in 1988/1989. M. NAGANOBU, H. KANOU and H. KATO.
5. Ecological-physiological characteristics of bacterial population in the Bering and Chukchi Seas. A. V. TSYBAN, G. V. PANOV, V. M. KUDRYAVTSEV and S. M. CHERNYAK.
6. Yearly change of chlorophyll *a* standing stock under sea ice in a lagoon, Lake Saroma. H. SATOH, Y. YAMAGUCHI, K. WATANABE, M. FUKUCHI and A. TANIMURA.
7. Pack ice microbial assemblages during the austral winter. D. L. GARRISON.
8. Ice algae found in the coastal fast ice on King George and Nelson Islands. K. WATANABE, F. HUANG and P. LU.

9. Production-destruction processes and biosedimentation in the Bering and Chukchi Seas in July-August 1988. A. V. TSYBAN, M. N. KORSACK, V. M. KUDRYAVTSEV, B. V. GLEBOV and V. I. MEDINETS.
10. The primary analysis on population composition of Antarctic krill *Euphausia superba* and relation with the water movements. S. CHEN, G. YANG and G. ZHAO.
11. The aggregated patterns of the Antarctic krill *Euphausia superba* and primary environmental analysis. S. CHEN, G. ZHAO and G. YANG.
12. Investigation of moult cycle of *Euphausia superba* DANA in concentrations (D'Urville Sea, East Antarctica). V. SPIRIDONOV.
13. Notothenioid fishes from the Weddell Sea and their habitat, observed by underwater photography and television. W. EKAU and J. GUTT.
14. Diving behavior of blue-eyed shags at Bird Island, South Georgia. A. KATO, Y. NAITO, Y. WATANUKI, J. P. CROXALL and Y. INO.
15. Foraging and resting dives in deep continuous dives of northern elephant seals. T. ASAGA, Y. NAITO, B. J. LE BOEUF and A. C. HUNTLEY.